The tabetic atrophy is due to disease of the cells of the anterior horns, and the latter, in turn, is due to the loss of irritation transmitted through the posterior roots, to a feeble resisting power of these motor cells, and to the influences of the postsyphilitic toxin. The tabetic muscular atrophy resembles that of spinal muscular atrophy, and this fact Schaffer regards as an argument in favor of the spinal nature of the tabetic atrophy. The wasting which occurs in tabes should be looked upon as a complication, and not as an essential part of the disease; the correctness of this view is shown by the comparative rarity of the atrophy and the late appearance of the trophic lesions.

SPILLER.

150. DAS VERHALTEN DER SPINALGANGLIENZELLEN BEI TABES AUF GRUND NISSL'S FÄRBUNG (The Cells of the Spinal Ganglia in Tabes, as Shown by the Nissl Stain). K. Schaffer Neurologisches Centralblatt, 17, 1898, p. 2).

The author follows Lenhossék in his classical description of the spinal ganglion cells, and reports upon three cases of Tabes, one of which was examined in the early stages of the disease. By means of the Nissl methods of staining he was unable to find any grave cytological variations from the norm established by Lenhossék. In two of his cases the degeneration was marked in the posterior roots, yet the cells of the ganglia were practically normal, though he notes a quantitative difference in the amount of the coloration of the chromophilic substances, these appearing paler in the cells of the cases showing the stronger grade of degeneration. His results were, therefore, negative, and are distinctly in contrast with those of Marinesco. He furthermore concludes from these cases that the central lesion of tabes is probably not to be found in the spinal ganglia.

JELLIFFE.

151. DIE EMBRYONALEN FASERSYSTEME IN DEN HINTERSTRÄNGEN UND IHRE DEGENERATION BEI DER TABES DORSALIS (The Embryonal Fibre Systems in the Posterior Columns and their Degeneration in Tabes). Trepinski (Archiv f. Psychiatrie, 30, 1898, p. 54).

The author here presents, firstly, a careful study of the spinal cord of the newly born child, in which he believes he finds that four methods of development may be present, i. e., the development of the posterior columns, from an embryological point of view, proceeds along four different lines. Some of these embryonal fibre systems are morphologically quite distinct, while others overlap one another, both with reference to their position in the cord and to the time of their development. In accordance with this presention, he then discusses four cases of tabes, in each of which a different type of degenerative lesion can be demonstrated, corresponding, he believes, with the four embryonal fibre systems demonstrated in his preceding discussion. He states that, bearing these facts in mind, it is readily understood why such a variation in intensity and extension in the pathological pictures may be present. He would further erect at least four types of the disease, according to which of the embryonal fibre systems is most involved. Mixed types are naturally to be expected. The paper is well illustrated and suggestive.

JELLIFFE.

152. ACUTE DEGENERATION OF THE NERVOUS SYSTEM IN DIPHTHERIA. J. J. Thomas (Boston Med. and Surg. Jour., 38, 1898, pp. 76, 97, 123).

In this series of articles an important contribution is made to the pathology of diphtheria which posseses an additional interest from its relation to the clinical question of death from cardiac failure, which is such a frequent termination of the disease. The early administration of antitoxin would appear to be a practical therapeutic corallery from the constant degeneration of the pneumogastric nerve observed. The writer's conclusions are based upon a series of twenty-five carefully-recorded cases, with autopsy and microscopical examination, from the pathological laboratory of the Boston City Hospital. The specimens were treated by Marchi's method. Other sections were stained by hematoxylin and eosin, and in some of the cases with eosin and Unna's alkaline methylene-blue stain.

The chief change of the nervous system in diphtheria is an acute degenerative process, chiefly parenchymatous, most marked in the peripheral nerves, affecting both the motor and sensory nerves. The myelin sheath is affected first and later also the axis cylinder, generally without infiltration or much multiplication of the nuclei. In this the results correspond pretty closely with those of other investigators, both clinical and experimental, as Prinz, Martin and Crocq, as well as earlier observers, such as Mendel, Leyden and others. Nor do these results stand at marked variance with those of authors who have found changes in the central nervous system, though hemorrhages and myelitis were not found; yet dilatation of the capillaries was observed, and the more marked changes certainly seem possible, though probably rare. The most marked change found in the central nervous system, and that in the brain, as well as the cord, was the presence of fat here, showing that the effect of the toxic substances upon the nerve structures is not confined to the peripheral nerves. These degenerations were diffuse; but, if anything, more marked in the posterior columns of the cord, as has been noted also by Bikeles; a fact difficult of interpretation, unless we assume a less power of resistance to injurious influences of these nerves fibres than is found in others. Indications of the existence of such a fact are not wanting, as shown by the large number of diseases in which degenerative processes have been observed in this region, as for example in pernicious anæmia, pellagra, leprosy and others. Perhaps this affection of the posterior columns may account, as Bikeles suggests, for the ataxia so often observed in diphtheritic paralysis. That the cranial nerves do not always escape the process affecting the nervous system so widely is also certain, as shown by the marked degeneration of the fifth nerve found in one case. These results agree with those of Martin, in that the posterior nerve roots were found fully as much affected as the anterior ones. In regard to the condition of the nerve cells one is not warranted in drawing any very definite conclusions from the results obtained by means of the stains used, but certainly there was no myelitis present. It seems quite probable, however, that some of the nerve cells would show changes, at least in their finer structure, where the nerve processes have suffered so widely.

The processes found in the specimens of heart muscle examined correspond closely to those previously reported by others. There was a parenchymatous degeneration of the muscle fibres, shown by loss of the striations, vacuolization and fatty degeneration. An increase of the muscle nuclei was not present though the nuclei were quite numerous; but this is due to the fact that the hearts examined were from children in whom, from the small size of the fibres, the nuclei appear to be more numerous. The nuclei showed no marked degenerative changes. The dilatation of the vessels was marked, and also the infiltration, both in the myocardium and in the interstitial tissue. This infiltration consisted mostly of small, round lymphoid cells, with a few larger cells, the nature of which could not be accurately determined because of the methods of hardening used—formol, and Müller's fluid. Certainly, leucocytes played no important part in the process. The most constant change was the interstitial process. The fact that changes were found, more or less marked, in all the pneumogastric nerves examined, seems to point to considerable influence upon the mode of death in the cases of sudden death. In what way does the poison act? It seems most probable that in such cases it acts through the nerve structures, interfering with their normal function, and that this may occur before degenerative processes have proceeded far does not lessen in any way the importance of their occurrence, but would rather lead us to place greater weight upon slight changes, where other obvious causes of death, as markedly degenerated heart muscle, do not exist. The variability of the amount of changes, both in the heart muscle and in the nerves, may point to a varying cause for these cases of sudden death; but the argument of the disturbance of the functions of the nerve seems strongest.

To sum up, the changes in the nervous system produced by diphtheria are: (1) a marked parenchymatous degeneration of the peripheral nerves, sometimes accompanied by an interstitial process, and hyperæmia and hemorrhages; (2) acute, diffuse, parenchymatous degeneration of the nerve fibres of the cord and brain; (3) no changes, or but slight ones, in the nerve cells; (4) acute, parenchymatous and interstitial changes in the muscles, especially the heart muscle; (5) occasional hyperæmia, or infiltration, or hemorrhage in the brain or cord, in rare cases severe enough to produce permanent troubles, such as the cases of multiple sclerosis or of hemiplegia which have been observed. Finally, the probability that the cases of sudden death from heart failure in diphtheria during the disease, or convalescence, are due to the effects of toxic substances produced in the disease upon the nerve structures of the heart. SHIVELY.

CLINICAL NEUROLOGY.

153. TABES AVEC CONSERVATION DES REFLEXES ROTULIENS (Tabes with Preserved Patellar Reflexes). MM. Achard and Lévi (La Med. Moderne, 9, 1898, p. 176).

A typical case of tabes, except for the preservation of the knee-jerks, is reported, with the autopsy. There was sclerosis of the posterior columns, most marked in the sacral and cervical regions. The cornu-commissural zone, the comma-shaped columns of Schultze, and the other "descending areas" were well preserved. At the junction of the lumbar and dorsal segments Westphal's zone of entry of the posterior roots ("Würzel-Eintritt") was observed to be intact. Numerous cases have now been reported of various forms of disorder of the spinal cord, in which it might be expected that the knee-jerk would be lost, but in which it has persisted, and wherever careful post-mortem investigation has been made this zone has been found intact. Lehmann, Kraus, Westphal, Minor, Pick and others have observed this persistence of the reflex in cases of tabes and "combined disease," and accounted for the fact by the integrity of this area in the cord. MITCHELL.

154. TABES DORSALIS UND WANDERNIERE (Tabes Dorsalis and Floating Kidneys). A. Habel (Centralblatt für Innere Medicine, 18, 1897, p. 161).

Attention is called to the fact that in cases of tabes a large proportion of wandering kidneys was observed. Thus in the Zurich Clinic some 14 per cent. of all the cases of tabes presented this anomaly, and in the case of the women some 25 per cent. were noted. The proportion observed in the general medical clinic at the same institution for the same time being 1 per cent. The author believes it not improbable that some sort of causative or predisposing condition may exist in this disease or in this anomaly. JELLIFFE.